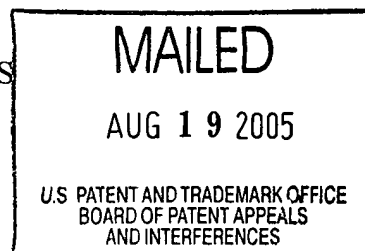


The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

*Ex parte* WILLIAM W. JACOBSEN



Appeal No. 2005-2171  
Application 09/900,129

ON BRIEF

Before PAK, WARREN and TIMM, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

*Decision on Appeal*

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner finally rejecting claims 13 through 19, all of the claims in the application.

Claims 13, 16 and 17 illustrate appellant's invention of a moldable thermoplastic composite composition, and is representative of the claims on appeal:

13. A moldable thermoplastic composite composition, comprising:

about 20 to about 50 percent by weight of a discontinuous lignocellulose wood fiber filler, the discontinuous lignocellulose wood fiber filler comprising at least about 20 percent by weight of discontinuous lignocellulose wood fibers having a length of at least about 15 millimeters and a diameter of less than about 0.50 millimeters, and  
about 50 to about 80 percent by weight thermoplastic.

16. The moldable thermoplastic composite composition as recited in claim 13, further comprising about up to 10 percent of a coupling agent.

17. The moldable thermoplastic composite composition as recited in claim 16, wherein the coupling agent is up to about 5 percent maleic anhydride grafted polypropylene, and the thermoplastic is about 45 to about 75 percent polypropylene.

The references relied on by the examiner are:

Georlette et al. (Georlette)	4,380,522	Apr. 19, 1983
Bergquist et al. (Bergquist)	5,194,461	Mar. 16, 1993
Coates et al. (Coates)	5,932,357	Aug. 3, 1999

The examiner has rejected appealed claims 13 through 16, 18 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Georlette in view of Bergquist (answer, pages 4 and 5-6), and appealed claim 17 under 35 U.S.C. § 103(a) as being unpatentable over Georlette in view of Bergquist as applied to claims 13 and 16, further in view of Coates (answer, pages 5 and 6-7).

Appellant states that the appealed claims “stand or fall together” (brief, page 3). Thus, we decide this appeal based on appealed claims 13 and 17 as representative of the respective grounds of rejection. 37 CFR § 1.192(c)(7) (2003); *see also* 37 CFR § 41.37(c)(1)(vii) (September 2004).

We affirm.

Rather than reiterate the respective positions advanced by the examiner and appellant, we refer to the answer and to the brief and reply brief for a complete exposition thereof.

### *Opinion*

Our consideration of the grounds of rejection advanced on appeal requires that we initially interpret appealed claims 13 and 17 by giving the terms thereof the broadest reasonable interpretation in their ordinary usage as they would be understood by one of ordinary skill in the art in light of the written description in the specification as interpreted by this person, unless another meaning is intended by appellant as established in the written description of the specification, and without reading into the claims any limitation or particular embodiment disclosed in the specification. *See, e.g., In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). We determine that the plain language of claim 13 specifies a moldable thermoplastic composite composition comprising at least about 20 to about 50 percent by weight of discontinuous lignocellulose wood fiber filler and about 50 to 80 percent by weight of any thermoplastic. The discontinuous lignocellulose wood fiber filler comprising at least any such

filler obtained from any manner of wood fiber wherein at least about 20 percent by weight of discontinuous lignocellulose wood fibers have a length in the range of at least about 15 millimeters to no upper limit, and a diameter in the range of less than about 0.50 millimeters. The open-ended terms “comprising” used in transition and in the body of the claim open claim 13 to include any manner of additional ingredients in the composition and in the wood fiber filler, such as the polar monomer modified polyolefines of appealed claims 16 and 17. *See generally, Exxon Chem. Pats., Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1555, 35 USPQ2d 1801, 1802 (Fed. Cir. 1995) (“The claimed composition is defined as comprising - meaning containing at least - five specific ingredients.”); *In re Baxter*, 656 F.2d 679, 686-87, 210 USPQ 795, 802-03 (CCPA 1981) (“As long as one of the monomers in the reaction is propylene, any other monomer may be present, because the term ‘comprises’ permits the *inclusion* of other steps, elements, or materials.”). Appealed claim 17, indirectly dependent on claim 13, specifies that the moldable thermoplastic composite composition includes up to about 5 percent maleic anhydride grafted, that is, modified, polypropylene and the thermoplastic is about 45 to about 75 percent polypropylene.

We find that Georlette would have disclosed to one of ordinary skill in this art moldable thermoplastic composite compositions containing 20 to 80% by weight of modified polyolefin and 20 to 80% by weight of cellulosic fibers, which can be extruded as well as compression- and injection-molded to obtain shaped articles (e.g., col. 1, l. 64, to col. 2, l. 2; col. 2, ll. 8-12 and 23-26; and col. 4, l. 34, to col. 5, l. 20). The modified polyolefin can be derived from any unsubstituted olefins having 2 to 6 carbon atoms, including polypropylene, the polyolefin can be modified by between 0.002 and 20% by weight of the polymer employed of polar monomers, such as maleic anhydride, wherein the grafted copolymers are formed prior to mixing with the fibers or prepared *in situ* during mixing the composition, and can additional include unmodified polyolefines (e.g., col. 2, ll. 3-7; col. 2, l. 24, to col. 3, l. 68; col. 4, ll. 13-24; and Georlette Examples 4 and 5). The cellulosic fibers can be “any type” and “in any sufficiently finely divided form,” including “fibers of deciduous or resinous timber” and “straw waste,” with the “preferred” fibers “in the form of particles having a mean particle size of between 0.1 and 3 mm” which “are lingo-cellulose materials produced from resinous or deciduous timber” (e.g., col. 4,

ll. 1-12). In Georlette Comparative Example 3, the polyolefin consists of 45% by weight polyethylene and 5% by weight maleic anhydride grafted polyethylene, the latter constituting 10% by weight of the polyolefin component, and the cellulose fibers are “beechwood scrap.” Georlette Example 7 also employs “beechwood scrap” but is reported in Georlette Table I to have a larger maleic anhydride content. Georlette Example 4 is reported in Georlette Table I to have the same maleic anhydride content as Georlette Comparative Example 3 but employs “spruce sawdust.” There is no disclosure in Georlette with respect to the dimensions of the cellulosic fibers in “beechwood scrap” and “spruce sawdust.”

We find that Bergquist would have disclosed to one of ordinary skill in this art moldable thermoplastic composite compositions that can contain 60 to 90% by weight of high density or low density polyethylene and 10 to 40% by weight of fibrous vegetative matter, and can be extruded as well as compression- and injection-molded to obtain shaped articles (e.g., col. 1, l. 52, to col. 2, l. 6; col. 2, ll. 57-63; col. 2, l. 64, to 20; col. 3, ll. 47-68; and Bergquist Example 1). The fibrous vegetative matter can be herbaceous fibers, such as oat straw, corn stalk fiber and soybean straw, “chopped into suitably shorter lengths” that can be “nominally 0.5 inches, [that is, 12.7 mm,] though fibers of lengths from 0.001 inch to several inches in length may be used,” with “lengths of between 0.001 and 12 inches” claimed (e.g., col. 1, ll. 52-55 and 65-67; col. 2, ll. 46-52; col. 3, ll. 21-30; Bergquist Examples 1 and 4; and Bergquist claim 3). We find that one of ordinary skill in this art would have interpreted “several inches” to include two inches, and that the range of 0.001 inch to 2 inches corresponds to 0.025 mm to 50.8 mm.

We agree with the supported position advanced by the examiner that, *prima facie*, the claimed moldable thermoplastic composite composition encompassed by appealed claim 13 would have been obvious over the combined teachings of Georlette and Bergquist to one of ordinary skill in this art at the time the claimed invention was made. Thus, we again consider the record as a whole with respect to these grounds of rejection in light of appellant’s rebuttal arguments in the brief and reply brief. *See generally, In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984).

The examiner advances the position that it would have been obvious to one of ordinary skill in this art to use fibers of up to a few inches in length in the compositions of Georlette as shown by Bergquist (answer, page 4).

“Appellant . . . submits that the Examiner has ignored that Appellant has solved the problem of a moldable composition of thermoplastic, such as [polyethylene], and wood cellulose fiber, by using a selected amount of long, hair-like wood cellulose fibers, that specifically have” the dimensions specified in claim 13, pointing to the properties reported in specification Table V as illustrating “that the more that the long, hair-like fibers are used, to 50 weight % of the fiber, then the better are the properties” (brief, pages 5, original emphasis deleted, and page 7; see reply brief, pages 5-6). Appellant points out that Georlette uses “graft modified malefic anhydride [polyethylene], which is not a thermoplastic, as a replacement for [polyethylene], which is a thermoplastic, because graft modified maleic anhydride is tacky and thus adheres well to the wood fibers” (brief, pages 5 and 6; reply brief, pages 1 and 4). Appellant argues that Georlette does not teach or suggest fibers having the claimed dimensions as the “fiber filler consists of small wood fibers, 0.1 mm to 3.0 mm in length, and appears to fall under the category of ‘wood flour’ or ‘dust’” (brief, pages 5-6). Appellant takes the position that Bergquist uses “herbaceous fiber, not wood fiber,” and disclose “a huge range of possible fiber lengths, 0.001 – 12 inches” which does not teach or suggest the claimed dimensions, arguing that Bergquist uses herbaceous cellulose fibers with unmodified polyethylene “because the herbaceous fiber has projections that will anchor in the” polyethylene, and thus “there is no suggestion whatsoever for long, hair-like fiber” (brief, page 6, original emphasis deleted; reply brief, pages 4-5). Thus, appellant submits that neither reference teaches fiber filler having the claimed dimensions (brief, page 7; reply brief, pages 6-7).

In response, the examiner points out that the examples reported in specification Table V use two types of wood and “it is not clear which of these fibers are longer and what is their length” (answer, pages 5-6).

We cannot agree with appellant that Georlette does not teach a composition containing unmodified polyolefin. We find that Georlette would have taught one of ordinary skill in the art that the polyolefin used in the moldable thermoplastic composite compositions are modified, that

is, grafted, polyolefines wherein at least the lower amounts of the range of 0.002 and 20% by weight of polar monomer based on the weight of the polymer employed would not completely modify all of the polyolefin content, whether formed prior to mixing of the ingredients or *in situ* during mixing, and indeed, the reference teaches that unmodified polyolefines can be included in the composition. Thus, the result is a polyolefin to which a polar monomer modified polyolefin has been added, forming thermoplastic composite compositions with cellulosic fibers which are moldable. Indeed, appealed claim 13 encompasses compositions comprising at least the amounts of maleic anhydride modified polyolefin represented by the range taught by Georlette, and it reasonably appears that compositions encompassed by appealed claim 16, which specifies up to 10 percent of such a coupling agent, and by claim 17, which specifies up to 5 percent of maleic anhydride modified polypropylene, encompass compositions comprising at least the amounts of maleic anhydride modified polyolefin falling within the lower end of the range taught by Georlette.

Thus, the principal issue in this appeal is whether one of ordinary skill would have used lignocellulosic fibers having the claimed dimensions in the moldable thermoplastic composite compositions of Georlette. We find no teaching in Georlette which limits the dimensions of the cellulosic fibers that can be used in the compositions taught therein. Indeed, Georlette teaches that the fibers “can be of any type and can be in any sufficiently finely divided form,” and can be selected from such materials as timber fiber and straw waste, which teachings would have suggested to one of ordinary skill in this art that the fiber source and dimensions can be selected based on the desired properties of the shaped article molded from such composition. The disclosure in Georlette of “particles having a mean particle size of between 0.1 and 3 mm” which appellant argues is limiting, is stated to be a “preferred” embodiment and thus not controlling with respect to the teachings that one of ordinary skill in the art would have found in the reference. *See In re Lamberti*, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976) (“[T]he fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered.”).

Therefore, we are of the opinion that one of ordinary skill in this art routinely following the teachings of Georlette would have reasonably arrived at a workable or optimum range for the

dimensions of the fibers used in the moldable thermoplastic composite compositions thereof. *See In re Aller*, 220 F.2d 454, 456-58, 105 USPQ 233, 235-37 (CCPA 1955) (“[W]here general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.”). We are reinforced in our view by the teachings of Bergquist that the length of straw fibers used in shaped articles cover a broad range based on the desired properties of the article, which range encompasses the preferred range of Georlette and overlaps the open-ended length range specified in the appealed claims. In this respect, we find that one of ordinary skill in this art would have considered the straw fibers of Bergquist to correspond to the “straw waste” fiber source taught in Georlette.

Based on the substantial evidence in the combined teachings of Georlette and Bergquist, we agree with the examiner that one of ordinary skill in this art routinely following the teachings of the references would have reasonably arrived at the moldable thermoplastic composite composition encompassed by appealed claim 13, including each and every limitation thereof arranged as specified therein, without resort to appellant’s specification. *See In re Dow Chem. Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988) (“The consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that [the claimed process] should be carried out and would have a reasonable likelihood of success viewed in light of the prior art. [Citations omitted] Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant’s disclosure.”); *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981) (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.”).

Accordingly, the burden shifts to appellant to establish by effective argument and/or objective evidence that the claimed ranges for the dimensions of the fiber filler encompassed by appealed claim 13 patentably distinguishes the claimed moldable thermoplastic composite composition over the teachings of Georlette. *See In re Woodruff*, 919 F.2d 1575, 1577-78, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990) and cases cited therein (“The law is replete with

cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. [Citations omitted.] These cases have consistently held that in such a situation, the applicant must show that the particular range is *critical*, generally by showing that the claimed range achieves unexpected results relative to the prior art range. [Citations omitted.]”).

We have carefully considered the evidence in specification Table V as relied on by appellant in the brief and reply brief. We find that the wood fiber filler used in Samples 5, 7, 8, 9 and 12 are described in footnotes 1 through 5 to specification Table 1 based on “fiber size expressed by grind distribution” and not on the dimensions of length and diameter as in appealed claim 13 (specification, page 12) and as argued by appellant. Thus, we agree with the examiner’s finding that the dimensional properties of the wood fiber filler is not clear. Even if the tested samples were clearly defined in the context of the claim language, we fail to find in the evidence a comparison of the claimed composition with a composition of Georlette which addresses the thrust of the examiner’s ground of rejection. *See e.g., Baxter Travenol Labs., supra* (“[W]hen unexpected results are used as evidence of nonobviousness, the results must be shown to be unexpected compared with the closest prior art. [Citation omitted.]”); *In re Burckel*, 592 F.2d 1175, 1179-80, 201 USPQ 67, 71 (CCPA 1979) (the claimed subject matter must be compared with the closest prior art in a manner which addresses the thrust of the rejection). Thus, the properties of the five samples, all falling within claim 13, on which appellant relies do not distinguish the claimed compositions over Georlette because, on this record, no actual difference with the compositions disclosed by the reference is established. *See In re Hoch*, 428 F.2d 1341, 1343-44, 166 USPQ 406, 409 (CCPA 1970) (evidence must provide an actual comparison of the properties of the claimed compositions with compositions of the references).

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of obviousness found in the combined teachings of Georlette and Bergquist with appellant’s countervailing evidence of and argument for nonobviousness and conclude that the claimed invention encompassed by appealed claims 13 through 16, 18 and 19 would have been obvious as a matter of law under 35 U.S.C. § 103(a).



We are further of the opinion that the evidence in the combined teachings of Georlette and Bergquist that we considered above establishes that the claimed moldable thermoplastic composite composition encompassed by appealed claim 17 would have been obvious under § 103(a) as well.<sup>1</sup> We determined above that appealed claim 17 encompasses compositions comprising at least the amounts of maleic anhydride modified polypropylene that reasonably appear to fall within the lower end of the range of 0.002 and 20% by weight of polar monomer based on the weight of the polymer employed taught by Georlette (*see above* pp. 5-6). Indeed, Georlette would have taught one of ordinary skill in this art that the disclosed compositions can include polyolefines modified by an amount of polar monomer at any point in the disclosed range, including the lower end thereof. *See In re Geisler*, 116 F.3d 1465, 1470, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997) (“The statement in Zehender that ‘[i]n general, the thickness of the protective layer should not be less than about [100 Angstroms]’ falls far short of the kind of teaching that would discourage one of ordinary skill in the art from fabricating a protective layer of 100 Angstroms or less.”); *cf. Lamberti*, 545 F.2d at 750, 192 USPQ at 280 (“The fact that neither of the references expressly discloses asymmetrical dialkyl moieties is not controlling; the question under 35 USC 103 is not merely what the references expressly teach, but what they would have suggested to one of ordinary skill in the art at the time the claimed invention was made.”).

Furthermore, the combined teachings of Georlette and Bergquist with respect to fiber filler dimensions apply to the moldable thermoplastic composite compositions encompassed by appealed claim 17 in the same manner as to the other appealed claims as we have discussed above. We remain of the findings and opinion we expressed above with respect to the evidence in specification Table V as relied on by appellant in the brief and reply brief, which equally applies to the claimed composition encompassed by claim 17.

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of obviousness found in the combined teachings of Georlette, Bergquist and Coates with appellant’s countervailing evidence of and argument for nonobviousness and

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<sup>1</sup> A discussion of Coates is not necessary to our decision with respect to this ground of rejection. *See In re Kronig*, 539 F.2d 1300, 1302-04, 190 USPQ 425, 426-28 (CCPA 1976).

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conclude that the claimed invention encompassed by appealed claim 17 would have been obvious as a matter of law under 35 U.S.C. § 103(a).

The examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (September 2004).

*AFFIRMED*

  
CHUNG K. PAK

Administrative Patent Judge

Robert H. Brown

CHARLES F. WARREN

Administrative Patent Judge

Catherine Fox

CATHERINE TIMM

Administrative Patent Judge

# BOARD OF PATENT APPEALS AND INTERFERENCES

✓ Appeal No. 2005-2171  
Application 09/900,129

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